QH
7
E135
NH

E ANHS

BULLETIN

A publication of the East Africa Natural History Society, Box 44486, Nairobi, Kenya. Price 4 shillings.

SHOUT
SHARE
IT

CONTENTS

A bird atlas for Kenya : where do we now stand? - - - - - - - - - - - - 2
Interspecific associations of larger mammals in Lake Nakuru National Park 10
A confirmed breeding record for the Swallow-tailed Kite in the Rift Valley of Kenya 12
Notices to anyone interested in birds - - - - - - - - - - - - - - - - - 12
Migrating Butterflies - 13
Butterfly migration at Gilgil - 13
The status of De Brazza Monkeys : A cry for help - - - - - - - - - - 14
Enrol a new member - 14
Tsavo walking tour 3 - 7 September 1983 - - - - - - - - - - - - - - 15
Flora of tropical East Africa 1952 - 1979 - - - - - - - - - - - - - 16
EANHS Weekend at Meru Mount Kenya Lodge 20 - 23 October 1983 - - - - 18
For sale - 19
Society notices - 20
Society Functions - 20

A BIRD ATLAS FOR KENYA: WHERE DO WE NOW STAND?

Some of the longer standing contributors to the Kenya bird atlas project have now been sending in data for well over two years. During this time, the scheme has grown significantly in terms of both scale and complexity. This evolution has been traced in nine progress reports which, for reasons of economy, were only circulated to a limited readership, and also in a total of four progress reports which have appeared in the *EANHS Bulletin* (1982: 64-70 & 86-91; 1983: 25-31) and in *Scopus* (7: 27-30). However, since this atlas could not exist without the selfless contributions of its supporters, we feel it paramount that the observer force as a whole be kept informed of its progress. Now, when we are seemingly nearing our goal, appears a good time to summarise our overall progress so far in another widely circulated publication: the various points are best sectionalised.

PROGRESS OF THE SCHEME TO 10/11/83

1) The observer force

The list of contributors which will appear in the published version of the study now has 182 names. The majority of these people are both EANHS members and contributors of actual bird records, but there are also those who have aided the project in various other ways.

2) The records collected

a) A total of 34 651 post-1970 presence records have been collected: the rate of accumulation of this total and our calculated percentage coverage of Kenya's birds are discussed in detail later in this article. In addition to to the post-1970 presence records, there are also large numbers of post-1970 probable and confirmed breeding records, and instances are emerging where these show hitherto undiscovered trends (e.g. as in the Rufous Sparrow *Passer motitensis*: *EANHS Bulletin* 1983: 27).

b) When the atlas started, we were set upon collecting only post-1970 data for the reasons given by Ash & Pomeroy (1981), and anything prior to this date was ignored. However, it later became apparent that incorporation of pre-1970 data would be both valuable and not too time consuming and thus we have done this for all pre-1970 data that we can find, including all of the data given by Jackson (1938), and many previously unpublished manuscripts. These 'pre' records have not been totalled, but are thought to be about 3 000: as with the post-1970 records, we are also collecting pre-1970 probable and confirmed breeding records. By our present system, the appearance of a post-1970 record in a square supercedes and removes any pre-1970 record already there, and the 'loss' of these pre-1970 records (they are mostly not irretrievably 'lost', as they could be rediscovered by a further, very lengthy search through the lists and literature) is possibly our greatest error and regret to date. Varying distributions of post and pre-records do highlight range changes (e.g. as in the Bustards Otididae and hornbills Bucerotidae), but by totally deleting updated pre-records we have lost the ability to see the *total* known pre-1970 ranges i.e. we can see areas in which a species' range has contracted and it has not occurred since 1970, but we cannot see where, since 1970, it has colonised *new* areas.

3) The methods of collection of records

We firstly incorporated all our own birdwatching records, and then those of members of the EANHS Ornithological Sub-Committee (OS-C) and other interested observers personally known to us. Requests for data were published in the *EANHS Bulletin* (1982: 64-70) and in the *Newsletter* of the Kenya Museum Society but, while these did yield responses, it soon became clear that the best way to solicit data was by means of personal letters to observers: not carbon copies, photocopies or cyclostyled appeals, but *personal* pleas, together with the assurance of a reply to *every* letter/batch of data received by the scheme.

From this quickly evolved the 'atlas pack', which is a package to a potential contributor which contains (a) a *personal* letter describing the scheme in detail and requesting data, (b) a completely updated copy of the scheme's progress map that shows the exact number of species recorded by the scheme for every quarter square degree in Kenya, (c) a list of the precise criteria for our 'probable' and 'confirmed' breeding categories and, finally, (d) a copy of the OS-C's *Checklist of the Birds of Kenya* (1981) to ease the contributor's burden when sending in a substantial number of records. It was also made clear that supplies of these lists would keep pace with whatever amounts of data the observer might like to send.

To date, 80.2% of these packs have produced a positive response, which certainly mitigates the time and effort involved in their production. Records that we have considered doubtful have always been questioned, often at length, and it is a tribute to the forebearance of our contributors that not one of them has questioned or been affronted by this procedure.

Many of the areas around Kenya's borders are poorly covered by birdwatchers from this country. For this reason, we have decided to accept data for quarter square degrees cut by Kenya's national borders, *regardless of whether the data come from Kenya or the neighbouring country*, provided that (a) the species concerned are not rare or new to the Kenya list, and (b) that the data originates from habitats that occur on *both* sides of the border. These data have been received from all our neighbouring countries and reciprocated where requested, and we are very grateful to John Ash, John Beesley, John Miskell and Gerhart Nikolaus for this material.

Other major tasks during the early collection of records were the incorporation of all data from the EANHS' Nest Record Scheme, and from the specimen collection of the National Museum, Nairobi. These were tremendous jobs and we sincerely thank Daphne Backhurst, Juliet Ribiro, Val Richards and, in particular, Mary Sinclair for their help in this data transfer.

4) The storage of data

Until the total of post-1970 presence records was over 20 000, incoming data were entered onto copies of the OS-C's *Check-list of the Birds of Kenya* (1981). These booklets were ideal for the purpose: one could be used for each one degree square, with its four columns as the master lists for each of the four constituent quarter square degrees. The OS-C very kindly donated 64 copies of the check-list to the scheme, which were sufficient to cover all the one degree squares in or touched by Kenya.

When the records total was around 20 000, the EANHS funded the printing of 1 500 maps showing all the quarter square degrees in Kenya, and the data were manually transferred from the check-lists to the maps in about three weeks of arduous but fascinating toil. Further incoming data were entered on both the check-lists and the maps.

5) The interpretation of the data

Many bird atlases from other parts of the world have presented their maps with a minimum or lack of interpretation and, in the early stages of the Kenya project, we glibly assured ourselves that there would be no need to toil over a lengthy text to accompany the maps since the relevant information had recently been published in Britton's *Birds of East Africa* (1980). However, the species maps were already showing abundant interpretable and often hitherto unknown patterns and results and to present the study without comment on these would be a definite loss despite *Birds of East Africa*'s summaries.

Thus we constructed a series of transparent map overlays to facilitate interpretation of species' ecological requirements. These overlays show altitude, rainfall, Bailey's moisture index (Bailey 1979), six categories of surface water (B.S. Meadows pers. comm.), four categories of woodland and forest, and principle towns and roads.

It was then felt that the information accruing from these overlays could best

be recorded on some sort of standard form and so we designed an 'information sheet' with spaces for data from each of the overlay types, as well as for comments on detectability, abundance/vagrancy, African range, allopatric species, numbers of records etc. Approximately 1 100 of these information sheets were cyclostyled (i.e. so as to provide one for each species in Kenya's avifauna) and then each was labelled with a species name and 'Britton number'. Manual interpretation using the overlays has now been carried out for 76% of Kenya's 1 060 + species.

Even if text to accompany the maps could be derived from overlay interpretation alone, there was still the need for a comprehensive search to gather further bird records from the ornithological literature. Being gluttons for punishment, there then seemed little point in going through the ornithological literature and *not* abstracting anything which would have a bearing on a bird's distribution on its atlas map, and this is what we have done.

For Jackson (1938), and the journals *Alauda*, *Ardea*, *Auk*, *Bulletin of the British Ornithologists' Club*, *EANHS Bulletin*, *Le Gerfaut*, *The Ibis*, *Journal fur Ornithologie* and *Scopus*, we have carried out a thorough literature search, in some cases back to 1930, and have abstracted all bird records and mentions of birds in Kenya that are of use to the atlas. All the references derived from this search and other sources have been typed on to file cards to form a continuously updateable bibliography for the study: there are now 689 sources listed on this card file. The remaining journals to be abstracted are the *Journal of the East Africa Natural History Society and National Museum*, *Ostrich* and *Die Vogelwarte*: after this, we shall be ready to start writing the actual accounts of each species.

The number of points that the atlas map of each species will show depends not only on the species' actual abundance and on the extent of its range, but also on its ease of detection, i.e. nocturnal species like nightjars Caprimulgidae may be numerically as common as diurnal species but will be expected to show fewer points on their maps due to (a) their inherent identification difficulties and (b) the difficulties of all nocturnal birdwatching. Hence they will have a low detectability.

In a similar way, the number of atlas points that a species attains will be affected by the observer coverage that it receives, i.e. rare species and/or those which inhabit the more remote areas of Kenya will receive less coverage than a common bird like the Fiscal *Lanius collaris*, that primarily inhabits the damper areas that receive more birdwatchers.

Hence, to save space in the published version, we have designed numerical scales to define each species' detectability and coverage, i.e. to further interpret its map's features. At first sight, detectability and coverage might appear synonymous but this is not so, e.g. in the case of a very rare but easily identifiable species where coverage will be poor since, although the bird is easily identified and thus its detectability is high, it would be unrealistic to assume that birdwatchers have recorded all its areas of very sporadic occurrence in Kenya.

Finally, we think that it would be wrong to treat species' Kenya distributions in isolation, and thus we shall relate their Kenya ranges to their distributions in the Afrotropical region, i.e. in Africa south of the Sahara. The ranges within sub-Saharan Africa of Kenya's Afrotropical species have been abstracted from Hall & Moreau (1970), Snow (1978) and other sources, and these have proved invaluable in helping to interpret their distributions within Kenya, not least of all because Kenya's position at the junction of several of Africa's zoogeographical zones means that a great number of Kenya's species are in some respect on the edge of their range.

These data were relatively simply (if arduously) abstracted from Snow and Hall & Moreau (*op. cit.*), but there is no text of comparable accuracy on the distribution of migrants from the Palaearctic within Africa during the northern winter. Hence David Pearson, Chairman of the OS-C, very kindly volunteered to

provide written summaries of the Afrotropical distributions of Kenya's Palaearctic migrants, and this considerable and original document has recently been received; we are extremely grateful for this help with the project.

6) Uses made of the atlas data to date

Publications deriving from the Kenya atlas studies include those listed by Lewis & Pomeroy (1983a), together with Lewis & Pomeroy (1983b) and Pomeroy & Lewis (1983); several further contributions are in press for *Scopus*, and more are in preparation.

Researchers to whom atlas data have been supplied include those listed by Lewis & Pomeroy (1983a), together with K.L. Campbell (total data for Tana River delta area for use in ecological impact assessment of a proposed large scale rice scheme); G.R. Cunningham-van Someren (Shoebill *Balaeniceps rex*, Hinde's Pied Babbler *Turdoides hindei*, Papyrus Yellow Warbler *Chloropeta gracilirostris*, Turner's Eremomela *Eremomela turneri* and Chapin's Flycatcher *Muscicapa lendu* for ICBP data sheets); P.B. Taylor (African Crake *Crex egregia* for publication). Discussions are in progress with the editors of the *Birds of Africa* regarding incorporating very broad summaries of our maps into future volumes.

WHERE DO WE GO FROM HERE?

So, after all this, with the exceptions of screaming easily and sleeping with the light on, where are we? Well, as stated above, after abstracting three more journals, ADL will start writing the individual species accounts. DEP, now based in Kampala, is already compiling the lengthy introductory chapter that will further facilitate interpretation of the maps, while also giving an account of our methodology.

Collection of data will cease sometime after mid-1984 and further trips in the meantime will be aimed at poorly covered areas of the country: the scheme holds over K.Shs.8 000 in grants from the EANHS to finance the petrol costs of visits to such places.

But even after all this, even after we have completed the whole thing, the last essential ingredient is of course a publisher. While it is too early to express any certainty in this direction, we are negotiating with a firm in Europe and we do feel optimistic of the outcome.

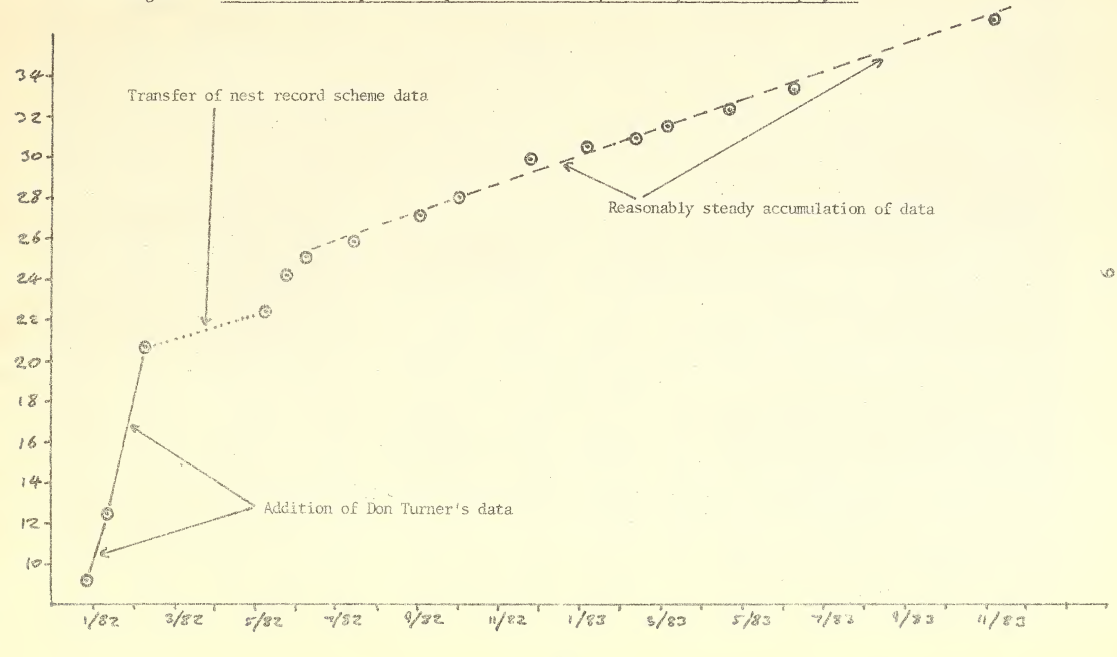
THE ACCUMULATION OF DATA BY THE SCHEME

Here are two figures to show the accumulation of data by the scheme (a) chronologically and (b) geographically.

Figure 1 shows the progressive accumulation of post-1970 presence records by the atlas scheme. Several points of interest emerge here. Firstly, the graph rises steeply in the early stages of the scheme (i.e. the rate of record accumulation was rapid) because, at that time, nearly all records were new, i.e. they were not duplicates of ones which we already had. However, as the projects coverage of at least the better known areas of Kenya (i.e. Lake Turkana, the highlands and the coastal strip) increased, the rate of *new* record accumulation slowed down and this is shown by the lessening of the angle of ascent of the graph. Should record collection proceed long enough (which it won't), there would of course come a time when *no* new data would appear, and then the graph would be horizontal.

Closer examination of Figure 1 reveals details of the scheme's progress. The totals for December 1981 and January 1982 rise steeply to culminate in the point for February 1982, which is strikingly above the general trend of the graph (which would be a line drawn between the January and May 1982 points). As we have said, data accumulation during these early stages was rapid, but this explosion in the first two months of 1982 was caused by the incorporation of all data from Don Turner's post-1970 field notebooks, which he very kindly loaned to the scheme; Don, Peter Britton and ADL are the largest contributors to the scheme in terms of actual numbers of records incorporated.

Figure 1 : Accumulation of post-1970 presence records by the Kenya bird atlas project



Having extracted Don's data and reached the then staggering total of 20 000 points, we turned our attention to the mammoth task of transferring all the material from the EANHS' nest record card collection to our maps. During this transfer there was little addition of actual data to the atlas' progress map and in any case the majority of records derived were of breeding phenomena which are not shown on Figure 1. So, after the rapid climb to 20 000, there is a distinct decrease in record accumulation, a plateau on the graph, until incorporation of the nest record data was complete and normal record accumulation began again.

Subsequent to this, the graph rises at a shallower but reasonably steady angle, demonstrating our successful gathering of records from less well known areas. This rate of accumulation must inevitably drop off however, and the November 1983 figure is already below the general trend.

This decreasing rate of accumulation of records with time reflects the 'law' of diminishing returns: when there are already 30 000+ records on the scheme, the effort required to add another 1 000 is relatively much greater than it was when there were no other records at all. Figure 1 shows the progress of time in a normal, linear fashion and thus, by diminishing returns, the graph's angle of ascent progressively lessens. If a logarithmic scale is used on the time axis, however, this compensates for the graphical representation of the diminishing returns effect and produces a reasonably good straight line graph (not illustrated here). From this straight line, it is possible to predict the numbers of new records that will accumulate in the future.

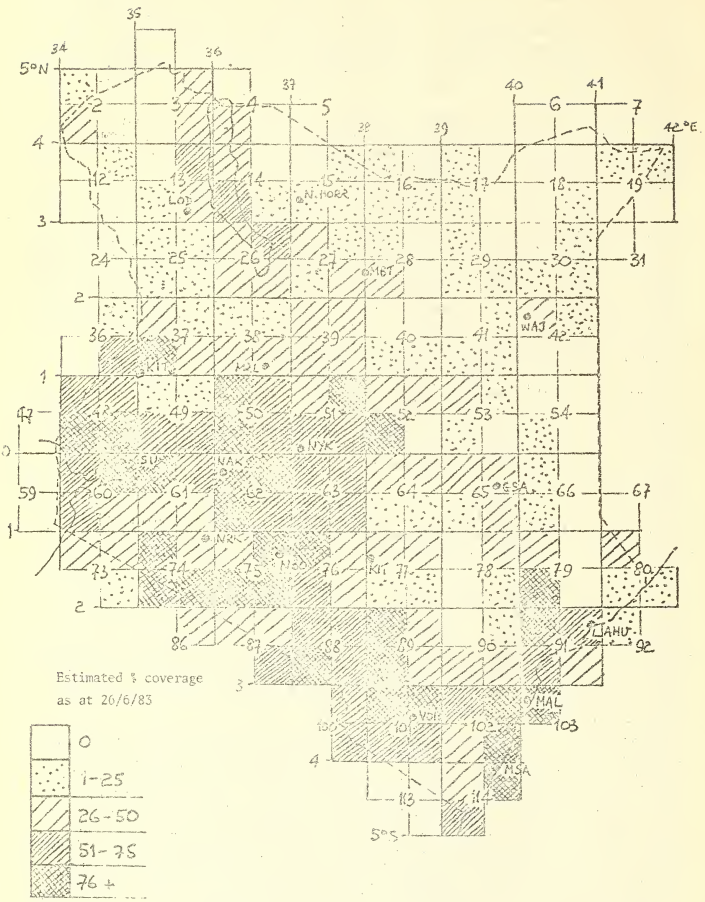
DEP has carried out this calculation and found that new records ought to appear at the rate of 5 500 for 1983 and 3 000 for 1984 (remember that diminishing returns make each successive year's total smaller). However, our 1983 increase is still only 4 202 (in November as I'm writing this), and it seems likely that we shall not reach our predicted target of 35 500 by January 1, 1984. And, of course, by diminishing returns this trend will continue. The only way to retard its progress is to gather records from poorly known areas, and we are planning to visit some 'empty' or nearly so squares. But of course you, the contributors, can also help by continuing to send data, and by yourselves trying to visit out of the way places: we can send completely updated copies of the atlas' progress map at any time so that you can see just where coverage is needed and this factor is also depicted very clearly on Figure 2.

In the June issue of *Scopus* (7: 40-43), we described a method for calculating the number of bird species that ought to occur in each of our atlas squares, based on altitude variation and number of aquatic habitats that occur in the square, and on the amount of coverage that the square has received from birdwatchers. Using the equation that we derived, Ms. Eve Abe then calculated the number of bird species that should occur in each quarter square degree (atlas square) in Kenya, and expressed the number of species that the project has in fact recorded in each square so far as a percentage of this figure.

The results of these calculations as at 26 June 1983 are shown in Figure 2. Although we have received substantially more data from the border areas with Ethiopia and Uganda since June, it can be seen that our coverage of Kenya is thin: only 63 (27%) of the squares have over 50% of their expected birds recorded and there are large areas in the north and east of the country where our coverage is 1-25%. The picture is not as gloomy as it might at first appear however, as the habitats of Kenya's arid areas tend to be fairly uniform, so that smaller numbers of points scattered on an 'arid bird's' atlas map are still representative of its range. By the same token, the same local and intricate habitats of the highlands (e.g. mountains, lakes etc.) and the coast have received much more detailed and appropriate coverage.

Achieving greater than 75% coverage is of course difficult, but two of our squares do in fact exceed 100% coverage. These are Nairobi 75b, which has a conjunction of habitats and intense and continual observer cover, and Kitale-

Figure 2: Estimated atlas coverage as at 26 June 1983



Kapenguria 37c where the expertise and long residence of Tim Barnley (Lewis (1983) together with another conjunction of varied habitats has yielded an enormous species list. The reason that 100% can be exceeded is of course because these percentages are derived from our *estimates* of expected species numbers - obviously we were not totally correct!

Finally, Figure 2 shows the areas that need coverage, so be a little more adventurous and plan your safaris accordingly! We are planning special trips to the totally blank areas of 113ab and 90a also to poorly covered squares such as 25 and 12b, but any square with under 50% coverage will yield large numbers of new records if visited, and several of these are not even very far from Nairobi e.g. 76b (east of Thika and Oldoinyo Sapuk), 76d (southeast of Machakos), 87a (between the southern end of Lake Magadi and the Tanzanian border), 87b (cut by the main road to Namanga), 61c (Sotik), 61d (Mau Narok and the western slopes of the Mau above Narok), 73a (Migori-Suna), 73b (Lolgorien), 73c (a minute part of a square easily accessible in the Masai Mara), 77a (Kitui), 77b (Endau), 77c (Mutomo), 49a (between Eldoret and Kitale) and 49b (Tambach, the Kerio Valley and the Tugen Hills).

So - get out there and do some really pioneer birdwatching!

REFERENCES

Ash, J.S. & Pomeroy, D.E. 1981. Mapping schemes in the Afrotropical region *Scopus* 5: 36-38.

Bailey, H.P. 1979. Semi arid climates: their definition and distribution, in *Agriculture in semi-arid environments*, eds. Hall, A.E., Cannell, G.H. & Lawton, H.W. Berlin: Springer-Verlag.

Britton, P.L. (ed.) 1980 *Birds of East Africa their habitat, status and distribution*. Nairobi: EANHS.

Hall, B.P. & Moreau, R.E. 1970. *An atlas of speciation in African Passerine birds*. London: British Museum (Nat. Hist.).

Jackson, F.J. 1938. *The birds of Kenya Colony and the Uganda Protectorate*. London: Gurney & Jackson

Lewis, A.D. 1983. Ten great places to see birds in Kenya. Part 2. *EANHS Bulletin* 1983: 83-87.

———— & Pomeroy, D.E. 1983a. A bird atlas for Kenya: a progress report. *Scopus* 7: 27-30.

———————————— 1983b. A bird atlas for Kenya: further progress 11. *EANHS Bulletin* 1983: 25-31.

Ornithological Sub-Committee of the EANHS 1981. *Check-list of the birds of Kenya*. Nairobi: OS-C EANHS.

Pomeroy, D.E. & Lewis, A.D. 1983. Estimating the number of species likely to occur in Kenya bird atlas squares. *Scopus* 7: 40-43.

Snow, D.W. (ed.) 1978. *An atlas of speciation in African Non-Passerine birds*. London: British Museum (Nat. Hist.).

Adrian D. Lewis, Geology, Box 30197, Nairobi

&

Derek E. Pomeroy, Dept. of Zoology, Makerere University, Box 7062, Kampala, Uganda.

- - - - - - - - - - - - - -

INTERSPECIFIC ASSOCIATIONS OF LARGER MAMMALS IN LAKE NAKURU NATIONAL PARK

During 1978 and 1979 ten game counts were run in Lake Nakuru National Park. The method and the results of the first three counts are described in a previous report (*EANHS Bulletin* 1978: 108-109). The data of all ten counts were used to describe the typical group size of the different antelope species and to calculate the biomass of the larger mammals of Lake Nakuru National Park (*EANHS Bulletin* 1983: 5-7).

During some of the counts, it was noted whenever a group was encountered which consisted of members of two different species. If, for instance, one or several warthogs were seen standing in a group of waterbuck this was noted as a "mixed group" of warthogs and waterbuck. Table 1 lists how many groups of the different species were seen and what percentage of these groups was mixed with another species. 318 of the 2498 groups counted were mixed groups (and 19 of these were even formed by three different species). The largest proportion of interspecific associations is reached by warthog : in more than a quarter of the cases when warthogs were seen they were together with members of another species.

Do the different species have any preferred partners of association? If there would be purely random mixing of groups we would expect the different possible combinations according to the frequency of the various species. Waterbuck, for instance, would be expected to occur together most often with the most common other species in the park, impala, and to occur together less often with the next common species, Thomson's gazelle, and so on. Table 2 shows how often the five most frequently seen species were found together. In most cases the observed values and those expected under conditions of random mixing are not very different. In two cases however, they are strongly different. Impala and Bohor reedbuck were found together much less often than would be expected from random mixing and the same is true for the association of Thomson's gazelle and waterbuck. This does not necessarily mean that impala and Bohor reedbuck or Thomson's gazelle and waterbuck avoid each other. The reason could also be that one of the species frequently occurred at places that were visited less often by the other species.

Warthogs were found together with antelopes quite often. What could be the advantage of such associations? One possibility, which has been suggested as the cause of associations of different antelope species in Nairobi National Park, is the following : When two species differ in their sensory capabilities, e.g. one is better at smelling, the other at seeing, their predator detection capacities would complement each other and the ability of the mixed group to detect a predator would be greater than the ability of a pure group of either species. In some cases of interspecific associations, the advantage could be rather one-sided : When one species is better at detecting predators than the other, the latter might show a tendency to associate with the former simply to use it as an early warning system.

Dr Peter Wirtz and Barbel Fobell,
Institut fur Biologie, Alberstr.21a, D - 78 Freiburg, W-Germany

TABLE 1

Number of groups and percentage of mixed groups counted in Lake Nakuru National Park

Species	number of groups	% mixed groups
Waterbuck	1035	11.1
Impala	800	14.9
Thomson's Gazelle	278	15.5
Bohor Reedbuck	126	8.7
Warthog	55	29.1
Bushbuck	38	10.5
Jackal	25	8.0
Kirk's Dikdik	23	4.3
Baboon	21	4.8
Zebra	18	16.7
Vervet Monkey	14	7.1
Buffalo	10	10.0
Grant's Gazelle	10	10.0
Total	2498	12.7

TABLE 2

Interspecific association of the five most common species

	Waterbuck	Impala	Thomson's Gazelle	Bohor Reedbuck	Warthog	Total
Waterbuck	-	89	20	9	8	126
Impala	89	-	32	3	9	133
Thomson's Gazelle	20	32	-	3	6	61
Bohor Reedbuck	9	3	3	-	0	15
Warthog	8	9	6	0	-	23

A CONFIRMED BREEDING RECORD FOR THE SWALLOW-TAILED KITE IN THE RIFT VALLEY OF KENYA

On 20 October 1983, while we were investigating the ground underneath the nest of a Secretary Bird *Sagittarius serpentarius* in the Kedong Valley near Mt. Suswa, we noticed, in the same *Balanites* tree a young, almost fully fledged Swallow-tailed Kite *Chelictinia riocourii* in a nest. In a nearby tree were two more young birds, slightly older as they were well able to fly, whereas the one in the nest would not fly even though we were collecting pellets from beneath its nest.

The nest was small, perhaps slightly smaller than those described by Davey & Davey (1980) and absolutely white, contrasting with the green of the tree. The whiteness was presumably the excrement of the nestlings; the nest itself was about 3 m above the ground and made of twigs. More detailed notes will be made after the young have finally departed. This was the only nest found, although this species is reported to nest colonially (Brown 1982).

Noticeable features of the young birds were the paler yellow legs when compared with the adult, buff streaking on the upper chest and white feathers scattered throughout the scapular region; some downy feathers remained on the otherwise grey crown, and a clearly visible white trailing edge to the wings which could be seen even while the chick was sitting. In flight, a black stripe could be seen on either side in the lower scapular region, not visible when the birds were sitting; the tail was very slightly indented, contrasting with the deep fork of the adult.

When the young were fed, and indeed while they were sitting on their own, they were heard to utter chirruping calls, which are described (Brown *op. cit.*) and recorded by M.E.W. North.

These observations, and the photographs we took, confirm breeding in an area where many sightings have been made and breeding suspected but not previously confirmed. It is hoped that a more detailed note will appear in *Scopus* soon.

REFERENCES

Brown, L.H., Urban, E.K. & Newman, K. 1982. *The Birds of Africa* Vol. 1. London: Academic Press.

Davey, P. & Davey, G. 1980. Swallow-tailed Kites breeding at Porr, Lake Turkana. *EANHS Bulletin* 1980: 47-48.

J. & A. Sutton & C.F. & L.M. Dewhurst, Box 41822, Nairobi.

- - - - - - - - - - - - - -

NOTICE TO ANYONE INTERESTED IN BIRDS

Are you a birdwatcher/photographer/ringer newly arrived in Kenya and in search of details of local birds, good areas to visit, relevant literature, ringing and other research schemes? See the *Bulletin* 1983 pages 65-71, for extensive information.

Every Wednesday Mrs Fleur N'gweno leads a birdwalk, generally in the Nairobi area. Anyone interested is asked to meet at the National Museum at 8.45 a.m..

- - - - - - - - - - - - - -

MIGRATING BUTTERFLIES

Around midday on 1 November 1983 I drove through what appeared to be a vast migration of white butterflies. From Loruk at the north end of Lake Baringo to Ratat some 50 km to the south, there was a continual passage of butterflies from right to left, in a southerly or south-easterly direction. A sample of a dozen road casualties collected a few kilometres south of Marigat was identified by Mike Clifton as *Belenois creona*, a butterfly known to indulge in migrations.

From Ratat to Nakuru the migration was not apparent, but we encountered it again on the main road from Lanet to Gilgil as a much narrower belt crossing from left to right, i.e. again moving south. I did not take samples from this migration but it appeared to be the same one and from its position and direction could be part of the same vast swarm. If so, the observed migration spanned at least 120 km.

On 10 November 1983 at about 8.30 a.m., Martin Pickford drove through a very dense migration between Gilgil and Lanet, again moving south. At about the same time, the butterflies started appearing in Nairobi. On 15 November 1983 large numbers were seen in the afternoon crossing the Embakasi plain near the airport, travelling approximately north-east.

According to Mike Clifton, massive migrations of butterflies occur every year at about this time, i.e. in the two months before Christmas. The direction of flight is anywhere between east and south. The migrants are mostly males, but some females fly with them. As many as 14 different species may be involved.

It is not known why they migrate. The *Belenois* caterpillars feed on shrubs of the family Capparicidaceae e.g. *Maerua*, and the long-haul migrations may be through areas where these do not occur. Possibly the initial trigger is population build-up in areas where the food-plants are abundant, and the migration is a dispersal mechanism.

Jo Darlington, c/o Section of Entomology, National Museums of Kenya, Box 40658, Nairobi.

- - - - - - - - - - - - - - -

BUTTERFLY MIGRATION AT GILGIL

On 10 November 1983, I noticed a huge amount of *Belenois aurota* butterflies (Brown-veined White) migrating eastward over Pembroke House School, Gilgil (2000 m a.s.l.).

The belt of *B. aurota* was estimated to be about three kilometres wide and the butterflies were flying at between 0 to 50 metres above the ground. The weather was fine, and there was not a lot of wind.

They flew over first on 10 November and on 11 November the migration was still continuing but there were not so many as on the previous day. They were most active at about 4 p.m., but they were also migrating at about 10 a.m.

Norbert Röttcher, Pembroke House School, Box 31, Gilgil.

- - - - - - - - - - - - - - -

* *
* Have you renewed your subscription for 1984? If not, be warned that this *
* will be the last issue of the *Bulletin* you will receive. SO RENEW NOW ! *
* *

THE STATUS OF DE BRAZZA MONKEYS: A CRY FOR HELP

Recently I completed a survey of the De Brazza monkey *Cercopithecus neglectus* in western Kenya. The work involved a population census and habitat evaluation. The aim of my research was not only to determine the status of this shy and beautiful animal, but more importantly, to make recommendations regardings its conservation. During the survey 54 De Brazza were located at 17 different sites, and several other sites were visited where the local people report that the species is still living nearby. My data suggest that the total Kenyan De Brazza population may be just slightly over 100 animals. With the exception of the few De Brazza found within Saiwa Swamp, all of these animals are located in isolated forest pockets amidst expanding farmlands. Remnant forests are either being cleared or, according to development schemes, are scheduled for clearing. The results indicate that the Kenyan population of De Brazza is nearing extinction, because of an irreversible loss of habitat, reproductive isolation, and decline in numbers due to predation by humans, who kill them either as agricultural pests or as a source of food.

A critical point has been reached. These animals can no longer survive without our help and, if an attempt is not made to rescue them, Kenya will lose this species forever. Due to the extent of encroachment and the current level of persecution by local farmers, translocation is the only chance we have to save this fragile population...

With support from concerned conservation groups, we may be able to trap endangered animals and move them to a suitable habitat within the protection of Mount Elgon National Park. But immediate action must be taken if we are to protect the last of Kenya's De Brazza monkeys.

If we hope to succeed in our conservation efforts, it is crucial that we identify all groups of De Brazza in danger of being killed or of losing their habitat. We are requesting that any information regarding this species, as to its present or previous distribution, as well as any additional information on its natural history and ecology, be sent to:

BRAZZA RESCUE,
c/o INSTITUTE OF PRIMATE RESEARCH,
P.O. BOX34505,
NAIROBI,
KENYA.

With your help we may be able to rescue one member of the vanishing wildlife of East Africa.

E. Jean Brennan, Institute of Primate Research, National Museums of Kenya

- - - - - - - - - - - - - -

* *
*
* ENROL A NEW MEMBER !
*
* If you consider the work your Society is doing as being worthwhile, and *
* appreciate it, the best way you can say thank you is to enrol one or - *
* preferably - more new members. Please use the enclosed application form, *
* should you require more than one, please ask the Secretary, P.O. Box 44486 *
* Nairobi to send you one if it is inconvenient to call personally at the *
* Societ's office. *
* *

Thirteen of us met at Mtito Andei on Saturday 3 September, the first day of tour, some coming from Nairobi and others from the Coast: but before the tale continues, I would like to offer my thanks to Mrs Campbell for what must have been a maddening and frustrating tour to arrange, which in the event, was a tremendous success. My thanks also to Jim Gardener, our tour leader, for his kindness, care and consideration throughout.

We entered Tsavo West National Park at Mtito Andei and then went by little used byways in Land Cruisers to our first camp beneath Kichwa Tembo in the Ngulia Range which towered above us.

We spent two nights in the first camp and as we were a large party we were split into two groups each with two game scouts, one in front and one behind. The second day we left camp at 6.30 a.m. after a quick breakfast and one group was driven up-stream by Land Cruiser and left to wade the river then to walk along the southern bank back to camp. The second group waded the river and walked down-stream to be collected and driven back. On the third day, the camp was moved and the groups swopped over, each doing the walk that the other had done on the previous day. On the fourth day both groups waded the river together and then set off separately down-stream to our final camp. As we were now entering man-eater country, those of us who had not done so before, thought it prudent to close the tent flaps before retiring for the night. Upon our fifth and final day we had a shortish walk from our last camp to Maneaters' Petrol station and Restaurent, but on the way we had to climb a steep high hill surmounted by a perpendicular rock before reaching the top to see a very fine and well preserved fortification built during the Great War of 1914-18. I flatly refused to scale the rock-face but was hauled to my feet, jammed to the rock like a postage stamp and frog-marched to the top. Having got there, it was well worth all the effort and fright to see the splendid view from the summit up the length of the Tsavo River along which we had walked. The last three kilometres were covered almost at a run; and so to Maneaters and the end of a delightful tour.

The tour was a slog, there can be no doubt about that: 22.5 km on the first day, 16 km on each of the two following days and 10 km on the last, but wading back across the river at the end of each day's walk proved a great restorative, so that we could walk another 3 - 4 km again in the evening, bird watching, looking for game or to see other things of interest, one being a small fort on a hill-top in such perfect order that it could well have been built the previous week, even to the barbed wire surrounding it. On many of the dry hill-tops were the shells of large snails such as are found at the coast, and no one could explain how they got there. Much of our walking was down a military road dating from the Great War, still so well preserved that with the help of a gang of men with slashers, it could quickly be brought back into full use. We also passed the odd, lonely grave.

We saw hippo in plenty, including one female who, finding herself cut off from the river by one of our groups, charged with a snort of rage and the group turned and fled; all except one who was laughing so much at the antics of the others that she couldn't move. The Scouts were displeased with us for being so panicky, but they or rather one of them was partly to blame by being too theatrical when he first saw the hippo, backing away and fiddling with his rifle in an alarming manner. No harm was done however. We also saw elephant, buffalo, plains game and a lion on the carcase of a fine young female giraffe, which ran away at our approach. One group also saw a pride of lion making a kill. It was pleasing to see on the river banks, the foot marks of several rhino and the pug marks of leopard, however, it was not so pleasing to see the 'pug marks' of poachers. Jim Gardener was able to warn Park Headquarters of their presence.

Our camps were very well organised with every comfort. It was a delight to arrive at the end of the Walk each day to find the tents pitched, our suitcases by the tents, tables and chairs set out, cold drinks, beer and an excellent meal waiting for us; and with a most kind and obliging camp staff to look after us. On the last evening we were presented with a splendid cake, baked and iced by the camp cook which we all thought showed great enterprise.

Bathing in the river was not encouraged due to the ever present crocodiles, of which we saw many, so bathers had to be escorted by an armed guard, altogether too off-putting for most of us, except at the last camp where it was deemed to be safe, so everyone splashed and wallowed by the hour. Jim had made a trapeze from a long piece of rope and a chunk of wood which was tied to a tree overhanging the river, the idea being to walk a certain distance up the tree, launch oneself over the river, let go and plunge in. Jim did some wonderful turns on it, worthy of any circus artist. We all went to bed on the last night of the tour feeling delightfully cool and clean after four hot and dusty days.

In the evenings a huge log fire was provided for us which was much appreciated for the evenings and nights were cold.

The lessons that I learnt for another such tour were:-

1. A water bottle is essential, not too large or heavy, as all one needs is the odd sip taken fairly frequently.
2. As blisters were a problem, wear two pairs of socks.
3. Well in advance of the walk, start rubbing one's feet daily with methylated spirit to harden them.
4. Practice walking in the shoes which are to be worn on tour, which must be large and roomy.
5. Never forget one's hat.

Adrienne Richardson, Box 100, Watamu.

- - - - - - - - - - - - - -

FLORA OF TROPICAL EAST AFRICA 1952 - 1979

Following are prices for Flora parts published up to 6 March 1979.

All parts are on sale at the National Museum from the East Africa Natural History Society, Box 44486, Nairobi and the Text Book Centre, Kijabe St., Box 47540, Nairobi at these prices.

Many parts are also obtainable from Government Printer, Haile Selassie Ave., Box 30128, Nairobi; Government Publications Agency, Box 1801, Dar es Salaam; Government Printer, Box 33, Entebbe.

Postage must be added for orders by post.

	Sh.		Sh.
Foreword & Preface	5/-	Brexiaceae	5/-
Aizoaceae	17/-	Butomaceae	5/-
Alangiaceae	5/-	Buxaceae	5/-
Alismataceae	7/-	Cabombaceae	5/-
Annonaceae	30/-	Cactaceae	5/-
Aquifoliaceae	5/-	Campanulaceae	17/-
Araliaceae	10/-	Canellaceae	5/-
Basellaceae	5/-	Cannabaceae	5/-
Berberidaceae	5/-	Capparidaceae	25/-
Bixaceae	5/-	Caprifoliaceae	5/-

Caricaceae	Sh. 5/-
Caryophyllaceae	17/-
Chenopodiaceae	10/-
Cochlospermaceae	5/-
Combretaceae	25/-
Connaraceae	10/-
Convolvulaceae	40/-
Cornaceae	5/-
Cucurbitaceae	40/-
Dilleniaceae	5/-
Dioscoreaceae	10/-
Dipsacaceae	7/-
Droseraceae	5/-
Elatinaceae	5/-
Escalloniaceae	5/-
Flacourtiaceae	20/
Flagellariaceae	5/-
Fumariaceae	5/-
Glossary of Botanical terms	0/P
Geraniaceae	10/-
Goodeniaceae	5/-
Gramineae part 1	40/-
" part 2	2/-
Guttiferae	17/-
Gymnospermae	7/-
Haloragaceae	5/-
Hamamelidaceae	5/-
Hypericaceae	10/-
Icacinaceae	7/-
Juncaceae	7/-
Juncaginaceae	5/-
Lecythidaceae	5/-
Leguminosae	
Pt. 1 Mimosoideae	40/-
Pt. 2 Caesalpinioideae	50/-
Pt. 3) Papilionoideae	110/-
Pt. 4)	110/-
Lemnaceae	5/-
Lentibulariaceae	10/-
Linaceae	7/-
Loganiaceae	17/-
Malpighiaceae	10/-
Marantaceae	7/-
Melastomataceae	25/-
Melianthaceae	5/-
Menispermaceae	Sh.17/-
Monimiaceae	5/-
Montiniaceae	5/-
Olacaceae	7/-
Oleaceae	17/-
Oliniaceae	5/-
Onagraceae	10/-
Opiliaceae	5/-
Orchidaceae Part 1	50/-
Orobanchaceae	5/-
Oxalidaceae	10/-
Papaveraceae	5/-
Passifloraceae	25/-
Pedaliaceae	10/-
Phytolaccaceae	5/-
Pittosporaceae	7/-
Plantaginaceae	5/-
Plumbaginaceae	7/-
Polygonaceae	17/-
Pontederiaceae	5/-
Primulaceae	10/-
Ranunculaceae	10/-
Resedaceae	5/-
Rhamnaceae	17/-
Rhizophoraceae	10/-
Rosaceae	20/-
Rubiaceae Part 1	100/-
Salvadoraceae	5/-
Sapotaceae	25/-
Scytopetalaceae	5/-
Sonneratiaceae	5/-
Sphenocleaceae	5/-
Taccaceae	5/-
Tamaricaceae	5/-
Tecophilaeaceae	5/-
Theaceae	5/-
Thymelaeaceae	17/-
Trapaceae	5/-
Turneraceae	10/-
Typhaceae	5/-
Ulmaceae	7/-
Vahliaceae	5/-
Valerianaceae	5/-
Velloziaceae	5/-
Total cost	Sh. 1497/-

This list deals with about half of the total number of parts which will form the complete flora. Work is in progress on many additional parts. Five parts were published in 1982 by A.A. Balkema. They are Gramineae Pt. 3, Cruciferae, Rutaceae, Amaryllidaceae and Balsaminaceae. Their prices in East Africa will be published when they arrive at the East Africa Natural History Society.

All prices quoted above are for sales within East Africa.

- - - - - - - - - - - - - -

EANHS WEEKEND AT MERU MOUNT KENYA LODGE 20 - 23 October 1983

Ten vehicles attended this weekend at the Meru Mount Kenya Lodge, situated on the edge of the montane forest and the moorland at 3000 m a.s.l. above the Chogoria Forest Station. The weekend turned out to be adventurous roadwise. All went well en route until we reached a point about 5 km from the lodge where the road steepens appreciably and it began to rain. One vehicle got through on its own but thereafter all the cars had to be towed up the forest track by a caterpillar tractor. This in turn chewed up the road to a truly awful condition.

The Lodge itself we found to be very comfortable and the staff most helpful. The site is beautiful and overlooks swamps which are visited by buffalo, elephant and other animals.

On the Friday most of the party took guides to walk up to Lake Ellis at an altitude of 3300 m. In fact this is two lakes and presents an optical illusion in that one lake appears to discharge uphill into the second. When this apparent anomaly was pointed out to the guide, he replied to the effect that we M'zungus seemed to think we knew everything and he could see no reason why it shouldn't do just that thing!

The moorland flora was simply superb and in much better variety than I can remember seeing on the western side of the mountain. The scenery seen between drifting cloud was also spectacular.

On the Saturday, some of the party explored the moorlands further while some walked down through beautiful forest to the Nithii River to try some fishing. The river was very high due to the prevalent rains, but the walk was well worthwhile for the forest and riverine flora.

Rain was experienced throughout the stay, and we anticipated trouble getting down over that awful track and how right we were! Most of us went down in convoy, and a Tirfor Winch provided by John Fowler was invaluable, pulling vehicles out of the ditches. Hence the adage "the Fowler the weather the better the wench".

Liz Fowler did a splendid job identifying some of the interesting plants seen, and her list is given which indicates the variety.

Birds were few in number, although we all had good views of the Scarlet-tufted Malachite Sunbird, most of them in non-breeding plumage.

It all added up to a fascinating weekend and the troubles with the road added zest to the experience - in retrospect.

One suggestion. A leader should be appointed for all Society outings as there are always matters needing co-ordination. New members in particular look to a leader to help them to integrate with the other members.

The following is the list of plant species seen during the weekend, compiled by Mrs Liz Fowler :

Geranium vagans — Geraniaceae
G. aralica
G. elamellatum — All collected on road near lodge.

Veronica abyssinica — Scrophulariaceae
V. gladulosa — Violaceae

Viola eminii
V. abyssinica. — *V. eminii* found at higher altitude, though both were found together on road from lodge at either end of their range.

Sedum ruwenzoriense — Crassulaceae
- Pretty little yellow creeper on rocks at edge of road.

Trifolium burchellianum — Papilionaceae
The purple clover.

Gentianaceae Two varieties of *Swertia - S. kilimandscharica*, the tall one seen near the road. Smaller one, seen higher up, is probably *S. volkensii*.

Tall yellow *Celsia floccosa* Scrophulariaceae - not *verbascum*.

Dipsaceae Two varieties - *scabiosa columlaria*, the blue one seen from the road up as high as the heath area; *Dipsacus pinnatifidus*, tall whitish, with scabrid stem. By road.

Heathers *Erica whyteana* (pink) *E. arborea* (white). *Blaeria johnstonii* (small pink flowers).

Everlasting flowers - *Helichrysum meyeri-johannis* (red)
H. nandense (small white flower, tallish bush)
H. foetidum (yellow)

Large white flower found in heath area *Anthemis tigrensis* Compositae. Single flowers.

Cineraria grandiflora (yellow, small flower).

In camp site, in damp places, *Corydalis mildbraedii* Fumariaceae, little yellow spurred flower with fern like leaves. Uncommon plant.

Pink balsam - *Impatiens rubromaculata* spur curves right round to touch calyx.

In heath areas and near Lake Ellis:
Helenstretia dentata Tall bush - *Struthiola thomsonii* Thymelaceae in same area as *Protea kilimandscharica*.
Delphinium macrorentrum. *Dierama pendulum* Two giant lobelias, *telekii keniensis*. The little flat yellow compositae is *Haplocarpha rueppellii*.
Other little yellow creeping plant, *Haplosciadum alyssinicum* Umbelliferae. Near Lake Ellis.

Yellow bushy compositae seen round lodge and up to where the cars were parked is *Euryops krownei*.

Gladiolus watsonoides.

Tall plant with grey green foliage - *Artemisia afra*.

Giant groundsel - *Senecio johnstonii* subsp. *lattiscomlei*.

Tom Grumbley, Box 200, Kiambu.

- - - - - - - - - - - - - -

FOR SALE

SHELL COLLECTION. Small, but interesting, collection of shells British Isles. All identified and labelled. Interested parties please contact:
Mrs G Hagberg, Box 14805, Nairobi

Tent to sleep two people and one sleeping bag. Contact Rosalie M. Osborn, Box 15052, Nairobi or telephone 891178 from December 18 - 23, 28 - 31.

- - - - - - - - - - - - - -

* *
* IMPORTANT NOTICE *
* The Society Office will remain closed from Monday 19 December to Friday *
* 6 January 1984 inclusive. *
* *

The following books are available in the Society office for sale to Members:

The Great Animal Land by Bonnie Lubega Sh.18/50

Reptiles and Amphibians of East Africa by Norman G. Hedges Sh.166/-

- - - - - - - - - - - - - -

SOCIETY FUNCTIONS

MONDAY 9th January, 1984: In the Museum Hall, Nairobi at 5.30 p.m.
Dr Anne Rasa will give an illustrated lecture on "THE DWARF MONGOOSE: SOCIAL STRUCTURE AND ECOLOGY OF AFRICA'S SMALLEST CARNIVORE".

MONDAY 6th February, 1984: In the Museum Hall, Nairobi at 5.30 p.m.
Dr Hugh Lamprey will give a lecture on "DESERT ENCROACHMENT IN NORTHERN KENYA AND THE SEARCH FOR REMEDIES".

18th - 19th February, 1984: Dr and Mrs K. Campbell will lead a weekend camping excursion to KIBWEZI FOREST, about 180 km from Nairobi. It is intended to investigate the small mammal and fish populations in the area. The forest is a remnant of indigenous forest formerly covering much larger areas, and some of the fauna and flora is akin to those of the coastal belt. Members should be self-contained with all food, water and equipment. If you want to take part in this field trip, please fill in the enclosed form and return it to Mrs Jill Campbell, Box 14469, Nairobi, before February 1st. Details of itinerary will then be sent.

MONDAY 12th March, 1984: In the Museum Hall, Nairobi at 5.30 p.m.
ANNUAL GENERAL MEETING followed by a slide show given by Mr D.K. Richards on "BIRDS OF THE BUSH.

In addition to the above functions there will be an informal outing on SUNDAY 15th January. Please meet at the Museum, bringing your picnic lunch.

- - - - - - - - - - - - - -

ANNUAL GENERAL MEETING

Nominations for Office Bearers and members of the Executive Committee, as well as notices of matters to be included in the Agenda should be sent to:

The Secretary, East Africa Natural History Society,
Box 44486, NAIROBI.

to reach her not later than February 6 1984.

- - - - - - - - - - - - - -

THE EAST AFRICA NATURAL HISTORY SOCIETY

Chairman: Prof. J.O. Kokwaro
Vice-Chairman: Dr. A.D. Lewis
Joint Editors: JI E. Africa Nat. Hist. Soc. Nat. Mus.: M.E.J. Gore, Ms. S. Karmali
Secretary: Mrs. H. Fletcher
Treasurer: Dr. S.G. Njuguna
Hon. Librarian: Mrs. C. Taylor
Executive Committee: (in addition to the above) Mr. G.C. Backhurst (Ringing Organiser), Mrs. A.L. Campbell, Mr. N.K. arap Chumo, Dr. D.J. Pearson, Mr. D.K. Richards, Mr. D.A. Turner
Co-opted Members: Mr. P. Davey, Mrs. J. Hayes, Mr. J.S. Karmali, Mrs. F. Ng'weno, Mrs. K. Smalley, Mr. P.B. Taylor (Nest Record Scheme Organiser)
Journal Editorial Sub-Committee: M.E.J. Gore, Ms. S. Karmali
Ornithological Sub-Committee: Dr. D.J. Pearson, D.A. Turner, G.C. Backhurst, A.D. Lewis, T. Stevenson, D.K. Richards, M.E.J. Gore, M.E. Smalley, K. Howell and N.E. Baker, J. Beesley (Tanzania), M.J. Carsell and D.E. Pomeroy (Uganda), B.S. Meadows and J.F. Reynolds (United Kingdom)
Joint Library Sub-Committee: (Society representatives) Mrs. C. Taylor, Mr. N. arap Chumo.

MEMBERSHIP

This offers you free entry to the National Museum, Nairobi; free lectures, films, slide shows or discussions every month in Nairobi; field trips and camps led by experienced guides, free use of the Joint Society-National Museum Library (postal borrowing is also possible); reciprocal arrangements with the Uganda Society's Library in the Uganda Museum, Kampala; family participation: wives and children of members may attend most Society functions; one copy of the **EANHS Bulletin** every two months; a copy of each Journal published during your period of membership; the Society controls the ringing of birds in East Africa and welcomes new ringers and runs an active Nest Record Scheme; activities such as plant mapping and game counting are undertaken on a group basis. Membership rates are given at the foot of this page.

JOURNAL

The Society publishes **The Journal of the East Africa Natural History Society and National Museum.** Each issue consists usually of one paper, however, sometimes two or more short papers may be combined to form one number. The aim of this method of presentation is to ensure prompt publication of scientific information; a title page is issued at the end of each year so that the year's papers may be bound together. Contributions, which should be typed in double spacing on one side of the paper, with wide margins, should be sent to the Secretary, Box 44486, Nairobi, Kenya. Authors receive twenty-five reprints of their article free, provided that these are ordered at the time the proofs are returned.

E.A.N.H.S. BULLETIN

This is a duplicated magazine issued six times a year, which exists for the rapid publication of short notes, articels, letters and reviews. Contributions, which may be written in clear handwriting or typed, should be sent to The Editor **(EANHS Bulletin),** Box 44486, Nairobi, Kenya. Line drawing will be considered if they add to the value of the article. Photographs cannot be published.

SCOPUS

The Ornithological Sub Committee publishes this quartely bird magazine. Cost: EANHS members KSHS. 75/= p.a. All correspondence to D.A. Turner, Box 48019, Nairobi, Kenya.

MEMBERSHIP SUBSCRIPTION RATES

Institutional (schools, libraries) annual payment: KShs. 70/= 100/-
Full Local and overses . . . . . annual payment: KShs. 70/= 100/-
Junior (full-time student, no
Journal supplied). . . . . annual payment: KShs. 10/= 50/-

Subscriptions are due 1st January. Form 1st July you may join for KShs. 35/= and receive publications from that date. Application forms for membership are obtainable from the Secretary, Box 44486, Nairobi.

SMITHSONIAN INSTITUTION LIBRARIES
3 9088 01230 2907